

REMARKS

Applicants respectfully request reconsideration of the instant application on the basis of originally presented claims. Claim 7 is the main claims and the remaining claims are directly or indirectly dependent upon that independent claim.

The Examiner has rejected the claims as being unpatentable over U.S. Patent No. 5,332,597 by Carolan et al. (*Carolan*). It is believed that Claims 7 to 12 are clearly distinguishable over this reference for the reasons that will be set forth.

35 U.S.C. § 102(b) Grounds for Rejection

The Examiner has principally rejected the claims as being anticipated by *Carolan*. It is believed that Claims 7 to 12 are clearly distinguishable over this *Carolan* reference for the reasons that will be set forth.

The *Carolan* patent shows the fabrication of a porous composite that includes a porous ceramic layer laid upon a porous substrate unlike the present invention that reduces leakage from a thin film applied to a porous substrate.

Referring to *Carolan*, columns 5 and 6, the *Carolan* disclosure starts with a porous substrate, followed by depositing a porous layer of multi-component ceramic oxides. The pores of the multi-component ceramic oxide are subsequently filled or plugged by allowing vaporized organo-metallic complex contacting one surface of the substrate produced above reacting with a gaseous reactive agent contacting the other surface within the pores of the multi-component ceramic layer.

The methods described at Column 5, line 38 to Column 6, line 33 in *Carolan* are for depositing the porous multi-component ceramic layer. Particularly, Column 6, lines 7-30,

described one method that uses vacuum filtration. Again, the *Carolan* disclosure fails to generate a leakage free film with the process described.

Column 6, lines 29-30 of *Carolan* mentions repeated filtration could be performed. However, the purpose of the operation in *Carolan* is for increasing the thickness of the porous multi-component ceramic layer.

Independent Claim 7 recites the following elements, the most pertinent to this discussion being presented in bold type for the convenience of the Examiner:

7. A method of manufacturing a ceramic film for reducing leakage of a selected gas through an outer surface of a porous ceramic substrate structure having an interior portion formed with the outer surface; the substrate being porous to at least one selected gas comprising:

applying a first ceramic coating layer to at least a portion of the outer surface of the ceramic substrate structure; the first ceramic coating being initially applied in a suspension state, the first ceramic coating suspension having a desired level of viscosity for substantially uniform application to the surface; and **being formed with a ceramic electrolyte powder and at least one organic additive; and**

applying a second ceramic coating layer to at least a portion of the outer surface of the ceramic substrate structure following application of the first ceramic coating and subsequent to a drying process of the first ceramic coating; the second ceramic coating being initially applied subsequent to application of the first ceramic coating; the second ceramic coating being initially applied in a suspension state having a lower

viscosity relative to the viscosity of the suspension used for the first coating.

[Emphasis Added]

Since such "second ceramic coating being initially applied in a suspension state having a lower viscosity relative to the viscosity of the suspension used for the first coating" of the Applicants' invention as claimed is not disclosed or suggested by *Carolan*, Applicants suggest that the claimed structure of the present invention is neither identical to or disclosed by either of the *Carolan* device or method. Therefore, *Carolan* cannot anticipate the present claimed invention.

While it may be fair to say that the absolute slurry viscosity in the process is related to the slurry composition, however, the present invention of gradually reducing viscosity in the subsequent coatings is designed to create leakage free films by filling defects (pores, pinholes, and cracks) in the previous coating layers. Therefore, gradually reducing slurry viscosity during the process is an integral part of the present invention.

Finally, since 1902 the Supreme Court has held that a process patent is not anticipated by a prior apparatus capable of use in practicing the process where the apparatus was not so actually used. Carnegie Steel Co. V. Cambria Iron Co., 185 U.S. 403, 22 S. Ct. 698 (1902).

"A process patent, . . . , is not anticipated by a mechanism which might with slight alterations have been adapted to carry to that process, unless, at least, such use of it would have occurred to one whose duty it was to make practical use of the mechanism described. In other words, a process patent can only be anticipated by a prior device of like construction and capable of performing the same function; but it is otherwise with a process patent." 185 U.S. at 424.

Even if the *Carolan* patent incidentally showed a similar arrangement of elements, if that arrangement is neither claimed nor designed to perform the function of the present invention, the *Carolan* patent should act as an anticipation.

35 U.S.C. § 103 Grounds for Rejection

The Examiner rejected Claim 10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,332,597 by Carolan et al. (*Carolan*) in view of U.S. Patent No. 5,985,113 by Crome et al. (*Crome*). Applicants respectfully traverse these rejections for the reasons discussed below.

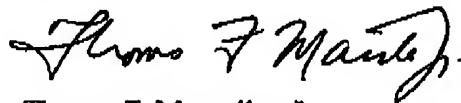
Dependent Claim 10 that depends from independent Claim 7 is also not made obvious by *Carolan* in view of *Crome* because Claim 10 includes the limitations of Claim 7 and adds additional elements that further distinguish the art. Therefore, Applicants respectfully request that Claim 10 be allowed.

Conclusion

For all the reasons given above, this application is now submitted to contain claims that define a novel, patentable, and truly valuable invention. Hence allowance of this application is respectfully submitted to be proper and is respectfully solicited.

If there are matters which can be discussed by telephone to further the prosecution of this Application, Applicants invite the Examiner to call the attorney at the number listed below at the Examiner's convenience.

Respectfully submitted,



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